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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/500,350
Filing Date: February 09, 2005
Appellant(s): MARUTIAN ET AL.

Kirk M. Hartung
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 29, 2011 appealing from the Office action mailed March 30, 2011.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claim 7

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

4,070,210	GIEREK ET AL	1-1978
4,655,852	RALLIS	4-1987
50-005213	JAPAN	1-1975

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Ground 1. Claim 7 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over Gierek et al (US 4070210) in view of Rallis (US 4655852) and Japan 50-005213 (hereinafter '213).

Claim 7: Gierek teaches a method of applying aluminum alloy coatings on cast iron and steel products. *Column 2, lines 35-65 and column 5, lines 25-26 and 44-45.* Gierek teaches that the product is first prepared for coating. *Column 5, lines 25-35 (such as preheating and cleaning before coating).* Gierek indicates that preheating is optional, however. *Column 2, lines 58-60 (products "may" be preheated).* Gierek then teaches that the prepared product is then plunged into a hot dip aluminum alloy melt bath to coat the product with the aluminum alloy. *Column 5, lines 25-35, for example and column 2, lines 35-65 (this provides simultaneous heat treatment from the molten bath and coating).* The temperature of the bath can be 550-950 degrees C, such as 550 to 650 degrees C. *Column 2, lines 50-60 and column 5, lines 25-30.* Gierek further teaches that possible aluminum alloy used in the bath can include aluminum alloyed with metal such as zinc, silicon, magnesium and tin materials. *Column 2, lines 50-55.* Gierek provides that the aluminum coatings can be applied without flux when desired. *Note Example VI, column 5, lines 25-40 where the coating is applied without any flux treatment as compared to Example VII, column 5, lines 45-50, where a flux treatment is applied.* Gierek further provides that the time of plunging can be 15 seconds to 30 minutes. *Column 2, lines 50-60, including 1-10 minutes, column 4, lines 40-50, or 30 seconds to 10 minutes, column 4, lines 5-10.* Therefore, it would have been obvious to provide that the time in the melt in the range of 70-80 seconds,

since In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Gierek provides all the features of this claim except (1) the pretreatment with jet abrasive followed by the next step of plunging, (2) precise temperature of the melt bath and the aluminum melt containing precise amounts of zinc, silicon, magnesium, and tin as claimed.

Rallis teaches a method of applying aluminum alloy coatings on steel products. *Column 2, lines 1-10, 34-50 and 64-68.* Rallis teaches that the product is first prepared for coating. *Column 2, lines 10-40 (heat treating) and column 6, lines 40-60 (heat treating and cleaning before coating).* The cleaning preparation can include grit blasting (which would be a jet abrasive use) the product. *Column 6, lines 40-60.* Rallis then teaches that the prepared product is then plunged into a hot dip aluminum alloy melt bath to coat the product with the aluminum alloy. *Column 6, lines 55-68, for example and column 2, lines 35-50 and 64-68.* The temperature of the bath can be 1000 to below 1341 degrees F (approximately 538 to 727 degrees C). *Column 2, lines 34-40.* Rallis further teaches that the bath can include aluminum alloyed with zinc, silicon, magnesium and tin materials. *Column 2, line 64 through column 3, line 5 (from a selection of the materials given).* Appellant has now claimed that the process is "consisting of" the steps of "preparing a surface of the product by jet-abrasion; and then plunging the prepared product into an aluminum melt . . ." (claim 7). The Examiner understands this to mean that a provided product

must be prepared by jet-abrasion and then plunged into the aluminum melt without any intervening steps. Rallis would at least suggest this sequence because it provides a heat treated product (*note for example column 7, lines 5-12*), and then degreasing and grit blasting followed by dipping into a molten aluminum bath (*column 7, lines 10-15*). This would at least suggest that grit blasting (jet abrasion) can be followed by plunging with no intervening steps because (1) grit blasting is the last step taught before plunging, or (2) since "degreasing and grit blasting" are described as occurring before plunging then it would be expected that either degreasing or grit blasting could occur as the final step before plunging with an expectation of similar results, or (3) since no particular limitation is provided on the "preparing to product surface by jet-abrasion" the "jet-abrasion process" could be considered as reading on the combination of "degreasing and grit blasting".

Moreover, '213 teaches that a desirable aluminum alloy composition for improved corrosion resistance includes, by weight, 2-18 % silicon, 2-8 % zinc, 0-2% magnesium and 0.1-1.5% Sn. *See the Abstract, and page 2 of the translation.* The Examiner notes that while the English language abstract refers to 0.5% copper in the alloy, this is a typographical error, and that '213 teaches 0-5% copper (which therefore means that no copper can be used), (*as shown on page 61, 1st column in Japanese; page 2 of the translation*) where " . . . Si 2-18%, Zn 2-8%, Cu 0-5%, Mg 0-2 % , Sn 0.1-15%. . . " is described, and also notes in the example in the abstract where 0.02 % copper is used which is below 0.5 % copper .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gierek to (1) provide that the "cleaning" process before coating provides grit blasting (jet abrasive treatment) immediately before plunging into the aluminum melt as suggested by Rallis with an expectation of desirable cleaning results, because Gierek teaches to provide a "cleaning" process before aluminum alloy melt coating and Rallis provides that it is well known for "cleaning" to include grit blasting when preparing a surface for aluminum alloy melt coating that would occur just before the aluminum alloy melt coating. (2) It would further have been obvious to modify Gierek in view of Rallis to optimize the temperature of the melt bath for the specific aluminum alloy used given that Gierek teaches a temperature range of approximately 550 to 950 degrees C, including 650 degrees C, and where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, it would have been obvious to modify Gierek in view of Rallis to perform the hot dip coating of the aluminum alloy using an alloy with the components and range taught by '213 with an expectation of providing a desirably corrosion resistant plated article, because Gierek teaches a desirable method for providing hot dip coating of an aluminum alloy on an iron or steel product using an aluminum alloy that can contain aluminum and alloying metal such as zinc, silicon, magnesium and tin and Rallis also teaches to providing hot dip coating of an aluminum alloy on a steel product using an aluminum alloy that can

contain aluminum and zinc, silicon, magnesium and tin, and that such alloy materials can be added in combination, and '213 teaches a desirable aluminum alloy containing aluminum, zinc, silicon, magnesium and tin for improved corrosion protection. It would further have been obvious to optimize within the taught range of '213 to determine the optimum or workable ranges by routine experimentation. See In re Aller, 200 F.2d 454, 105 USPQ 233 (CCPA 1955). The Examiner understands the ranges given in '213 to be in weight percent as the description is in the conventional format for describing weight percent of alloys and as page 2 of the translation indicates that the percentages are in weight percent. While appellant, in the specification as filed, appears to be taking the position that alloys outside the claimed ranges and temperatures do not provide the claimed results, apparently arguing unexpected benefits, the Examiner notes that no results have been shown for an alloy containing aluminum, zinc, silicon, magnesium and tin in amounts just outside the claimed ranges, with a showing of unexpected results within the ranges. Rather the comparative data of Table 1 is to alloys missing some ingredients altogether (while the cited reference to '213 suggests alloys specifically containing Si, Zn, Mg and Sn), and as to Table 2 only a single point of ingredients is shown, not the ranges as claimed, and therefore unexpected results are not shown for the temperature range (Note MPEP 716.02(d), unexpected results must be commensurate in scope with what is claimed, note In re Peterson, 315 F.3d 1325, 1329-31, 65 USPQ2d 1379, 1382-85 (Fed. Cir. 2003) (data

showing improved alloy strength with the addition of 2% rhenium did not evidence unexpected results for the entire claimed range of about 1-3% rhenium)).

(10) Response to Argument

At page 7 of the Appeal Brief of June 29, 2011, appellant argues that claim 7 requires that the product to be coated to be prepared by jet-abrasing the product surface before plunging the product into the alloy melt for 70-80 seconds at 660-680 degrees C, and that the Examiner acknowledges that Gierek fails to teach 1) jet abrasion pretreatment, 2) the melt temperature range, and 3) the precise alloy composition, and the Examiner relies upon Rallis and Japan '213 to overcome these difficulties. Appellant argues that, however, it would not be obvious to modify Gierek as suggested by the Examiner, with appellant's invention coating a very specific aluminum alloy composition at a narrow temperature range for a small period of time without the use of flux, producing a coated product with a plastic coating of high corrosion resistance, and specifically not obvious to combine the cited references to achieve this goal of plasticity of the coating on the product.

The Examiner has reviewed this argument, however, her position is maintained. It remains the Examiner's position that the combination of the art as cited provides the suggestion to hot dip an aluminum alloy with metal additives in the claimed amounts with the same pretreatment, temperature range and time period for the reasons discussed in the rejection above. While appellant is of the position that the claimed

process provides a desirably plastic composition, the Examiner notes that it is not necessary for the prior art to desire to get a plastic coating, as long as the same steps for getting such a coating are provided. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). As to the combination of Gierek, Rallis and Japan '213, the Examiner has addressed appellant's specific arguments in sections A, B and C below. Furthermore, the Examiner notes that as discussed in the **Ground of Rejection** above, if appellant is of the position that their specific alloy, temperature range, time period and pretreatment provide an unexpectedly plastic coating in that specific combination of conditions (from the references to the specification), such a showing has not been made. While appellant in the specification appears to be taking the position that alloys outside the claimed ranges, temperatures and times do not provide the claimed results, apparently arguing unexpected benefits, the Examiner notes that no results have been shown for an alloy containing aluminum, zinc, silicon, magnesium and tin in amounts just outside the claimed ranges, with a showing of unexpected results within the ranges. Rather the comparative data of Table 1 is to alloys missing some ingredients altogether (while the cited reference to Japan '213 suggests alloys specifically containing Si, Zn, Mg and Sn), and furthermore, seems to show that desirably plastic results occur with a different alloy (note the aluminum/zinc/silicon/magnesium alloy (Table 1, second to last,

comparative) and the aluminum/zinc/silicon/magnesium/tin alloy (Table 1, last, in the claimed range) both give results of the same minimum diameter of mandrel and character of the corrosion). Moreover, only one point of comparison is shown, with one specific alloy in the claimed range in Table 1 (Note MPEP 716.02(d), unexpected results must be commensurate in scope with what is claimed, note In re Peterson, 315 F.3d 1325, 1329-31, 65 USPQ2d 1379, 1382-85 (Fed. Cir. 2003) (data showing improved alloy strength with the addition of 2% rhenium did not evidence unexpected results for the entire claimed range of about 1-3% rhenium). As to Table 2, only a single point of ingredients is shown, not the ranges as claimed, and therefore unexpected results are not shown for the temperature range (Note MPEP 716.02(d), unexpected results must be commensurate in scope with what is claimed, note In re Peterson, 315 F.3d 1325, 1329-31, 65 USPQ2d 1379, 1382-85 (Fed. Cir. 2003) (data showing improved alloy strength with the addition of 2% rhenium did not evidence unexpected results for the entire claimed range of about 1-3% rhenium)). Moreover, no specific comparison as to time of immersion is made with alloys in the claimed range at the same temperature, for example, and therefore no showing has been made of unexpected benefits as to time of immersion.

A. At pages 7-10 of the Appeal Brief of June 29, 2011, appellant argues the combined references do not teach the limitation of claim 7.

Appellant argues, at pages 7-8, that the Declaration of Dr. Frankel indicates that the Rallis process produces high strength, which is the opposite of appellant's ductile coated product, and that since the goals of appellant's process and Rallis' process are contrary to one another, there is no reason one of ordinary skill in the art would look to Rallis for any purpose or useful information.

The Examiner has reviewed this argument, however, her position is maintained. The mere fact that Rallis has a different goal from appellant, even if the goal of strength will result in low ductility, does not mean that one of ordinary skill in the art would not look to the teaching of Rallis for any reason. Rather, it the art can be considered analogous, it can still be considered (note MPEP 2141.01(a)(I), to rely on a reference under 35 USC 102, it must be analogous prior art). As discussed in MPEP 2141.01(a)(I), analogous art is considered under the following analysis, "“Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed. ” KSR International Co. v. Teleflex Inc., 550 U.S. ___, ___, 82 USPQ2d 1385, 1397 (2007). Thus a reference in a field different from that of applicant’s endeavor may be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his or her invention as a whole.” In the present case, appellant desires to provide a plastic protective coating without the use of flux from an aluminum melt (page 2, lines 1-5 of the specification as filed), and also notes that the invention in

general refers to applying metal, e.g., aluminum, coatings by plunging into the melt and may be used, for instance, for corrosion protection of rolled and other cast iron and steel products (page 1, lines 4-6 of the specification as filed). Therefore, at the least, even if the reference to Rallis is not considered in appellant's field of endeavor because it is not concerned with applying plastic (ductile) aluminum coatings onto ferrous metal, it would be logical to look at art concerned with coating ferrous metal articles with hot molten aluminum alloys in general to see what is generally taught in the field independent of plasticity of coatings (that is, the art would be reasonably pertinent). Here, as to the specific use of Rallis as to (1) cleaning features and (2) that combinations of different metals are conventionally used in the aluminum alloys for plating, while Rallis may not be concerned with plasticity, Rallis demonstrates (1) well known features of cleaning in this art, and one concerned with plating ferrous materials with aluminum alloys would be suggested to see what was known and conventional in the art concerned with coating ferrous metal articles with hot molten aluminum alloys in general, including pretreatments such as cleaning to prepare a surface for plating, and how to provide such cleaning in a desirable manner, especially noting that the primary reference to Gierek teaches that precleaning in general is known before the plating (column 5, lines 25-26, for example). One of ordinary skill in the art would clearly know that the desire to clean before plating is independent of the plasticity of the coatings and reasonably pertinent to appellant, because both Gierek (which desires a plastic coating (column 3, lines 55-60) and Rallis both show the desire to clean before plating. As to

using Rallis for (2) the known combination of multiple alloying elements with the aluminum in the art, this teaching would also be understood to be independent of the plasticity of the coating provided, because Gierek notes that aluminum alloys can be used in general (column 1, lines 13-22), and plastic coatings can be obtained as discussed above, and such alloys can also be used with a selection of additional metals (column 2, lines 50-55), indicating that, at the least, the individual additional metals would not prevent ductile coatings, and Rallis notes that aluminum alloys can also be used with metals overlapping that taught by Gierek with more than one of the metals used (column 2, line 65 through column 3, line 5), and moreover, indicates that the strengthening can occur with such alloys only when described heat treating and steps are provided (column 3, lines 5-15, column 2, lines 15-50), indicating that the alloy of aluminum used will not cause a coating to be non-plastic on its own.

Appellant further argues at, page 8, that while the Examiner acknowledges that the temperature of the melt bath should be optimized for the specific aluminum alloy used in the bath, neither Gierek nor Rallis use the specific aluminum alloy set forth in claim 7, such that the temperature ranges disclosed in Gierek and Rallis are meaningful only for the specific alloys disclosed therein, and are meaningless for appellant's different alloy composition, and Japan '213 does not overcome this deficiency, since Japan '213 appears to have no temperature ranges for the alloy bath.

The Examiner has reviewed this argument, however, her position is maintained. Gierek teaches that the temperature of the bath of aluminum alloy should be 550-950 degrees C for aluminum alloys in general (column 1, lines 13-22, for example). Gierek goes on to give an exemplary example of aluminum alloys containing a specific additional metal (column 2, lines 50-52), but Gierek is not limited to these specific alloys ("The aluminum alloy **may** be those with a metal such as . . . .", emphasis added). Thus, the temperature range of Gierek is certainly indicated or suggested as being meaningful or useful for aluminum alloys in general and not limited to specific examples given. Therefore, one of ordinary skill in the art would understand that one would optimize the temperature from within the range taught by Gierek for any aluminum alloy used. The Examiner has cited Rallis as demonstrating the conventional addition of combinations of metals, that include the claimed combinations, when providing hot dip aluminum alloy on ferrous surfaces and has specifically cited Japan '213 as to a specific known alloy with the materials and amounts present claimed known to be corrosion resistant, but the temperature range and optimization of the temperature range comes from the teaching of Gierek. A corrosion resistant aluminum alloy would certainly be desired for use by Gierek as it desires anticorrosive results as well (column 3, lines 1-5 and 55-60, for example).

Appellant further argues, at page 8, that the optimum bath time is also related to the specific aluminum alloy, and therefore, the times disclosed in Gierek and Rallis are

irrelevant since they use a different alloy than appellant, and Japan '213 does not appear to provide any disclosure on bath times.

The Examiner has reviewed this argument, however, her position is maintained. Similarly as to the temperature range discussed above, Gierek also teaches that the time of treatment in the bath for aluminum alloys in general is 15 seconds to 30 minutes (column 1, lines 13-22, for example). Gierek goes on to give an exemplary example of aluminum alloys containing a specific additional metal (column 2, lines 50-52), but Gierek is not limited to these specific alloys ("The aluminum alloy **may** be those with a metal such as . . . .", emphasis added). Thus, the time range of Gierek is certainly indicated or suggested as being meaningful or useful for aluminum alloys in general and not limited to specific examples given. Therefore, one of ordinary skill in the art would understand that one would optimize the time from within the range taught by Gierek for any aluminum alloy used. The Examiner has cited Rallis as demonstrating the conventional addition of combinations of metals, that include the claimed combinations, when providing hot dip aluminum alloy on ferrous surfaces and has specifically cited Japan '213 as to a specific known alloy with the materials and amounts present claimed known to be corrosion resistant, but the time range and optimization of the time range comes from the teaching of Gierek. A corrosion resistant aluminum alloy would certainly be desired for use by Gierek as it desires anticorrosive results as well (column 3, lines 1-5 and 55-60, for example).

Appellant further argues, at page 8, that Gierek does not provide any specific alloy for the bath, provides a wide range of temperature and wide bath time, with no examples in the claimed temperature range of 660-680 degrees C, and even if the alloy of Japan '213 is used in the Gierek bath, substantial experimentation would be necessary to find applicant's preferred temperature range and short bath time of 70-80 seconds.

The Examiner has reviewed this argument, however, her position is maintained. As noted above, while Gierek provides a temperature range (550-950 degrees C) and time range (15 seconds to 30 minutes) overlapping that of appellant for aluminum alloys in general, and the specific aluminum alloy containing the specifically claimed amounts of zinc, silicon, magnesium and tin is provided by the suggestion of Rallis and Japan '213. The amount of experimentation to determine the optimum temperature and optimum time from within taught ranges would not be an unacceptable amount given that case law provides that in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Moreover, as discussed in MPEP 2144.05(II)(A), "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ

233, 235 (CCPA 1955)," and as discussed in the **Ground of Rejection** above, no showing of criticality or unexpected benefits for the claimed ranges has been made.

Appellant further argues, at page 9, that Rallis teaches that the tool to be aluminized must be immersed in the molten aluminum bath at a temperature of 1000-1341 degrees F for a period of more than 5 minutes, and while the temperature range cover's appellant's claimed range, the time of immersion is substantially longer, and there is no example in the claimed range of temperature, and no suggestion that the time for the bath can be reduced to 70-80 seconds.

The Examiner has reviewed this argument, however, the rejection is maintained. The temperature and time of immersion range has come from the teaching of the primary reference to Gierek as noted in the rejection above. While Rallis does not teach both the temperature and time of immersion in combination, Rallis has been cited for the teaching of (1) precleaning features and (2) the known combination of multiple alloying elements with the aluminum in the art, both of which teachings are independent of the temperature and time of immersion taught by Rallis for the reasons discussed the paragraphs above.

Appellant further argues, at page 9, that the prior art must be analyzed or compared for its complete teaching, and not dissected, and it is thus improper to

consider the Rallis bath temperature apart for the bath time, and when considered together Rallis teaches away from this time limitation.

The Examiner has reviewed this argument, however, the rejection is maintained. The temperature and time of immersion range has come from the teaching of the primary reference to Gierek as noted in the rejection above. While Rallis does not teach both the temperature and time of immersion in combination, Rallis has been cited for the teaching of (1) precleaning features and (2) the known combination of multiple alloying elements with the aluminum in the art, both of which teachings are independent of the temperature and time of immersion taught by Rallis for the reasons discussed the paragraphs above. A consideration of the entire reference to Rallis does not indicate that it would be dissected and teach away from the present invention, because while Rallis has a different range of heating and time of immersion that are not the same as the ranges taught by Gierek, Gierek provides that its treatments can be used for anticorrosion resistance, temperature resistance and mechanical property improvement (column 3, lines 1-10), including plasticity improvement (column 3, lines 55-60), while Rallis teaches using its treatments to provide high strength and corrosion resistance (column 3, lines 10-20), and therefore, when combining the references and desiring the benefits taught by Gierek, the temperatures and times taught by Gierek would be considered. While Rallis teaches another possible treatment for different results, it does not indicate that the treatment of Gierek would not work for the results it desires, and "the prior art's mere disclosure of more than one alternative does not

constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed…." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Appellant further argues, at pages 9-10, that the Examiner asserts that it would be obvious to modify Gierek in view of Rallis to use the alloy of Japan '213 to provide a desirable corrosion resistant plated article, but there is no evidence that the Japan '213 coated article has any more corrosion resistance that the coated article of Gierek or Rallis, and therefore there is no rational underpinning to modify the references as taught by Japan '213, with the Examiner providing no evidence that the process of Japan '213 produces better corrosion resistance than Gierek or Rallis.

The Examiner has reviewed these arguments, however, her position is maintained. Firstly, even if Japan '213 was simply to provide a corrosion resistant alloy that was just as corrosion resistant as the coated article provided by Gierek or Rallis (and the Examiner notes that Rallis actually teaches combinations of alloy material in general that would overlap that taught by Japan '213, see column 2, line 64 through column 3, line 5 of Rallis), it would still be acceptable to use the alloy of Japan '213 as the alloy, based on the acceptable motivation as discussed in MPEP 2143(B), Simple substitution of one known element for another to obtain predictable results, since the alloy of Japan '213 would provide the predictable result of corrosion resistance. Secondly, as to the possible motivation of better corrosion resistance using the specific

alloy of Japan '213, Japan '213 discusses how the addition of Zn, Si and Mg and Sn in amounts overlapping the claimed amounts can provide a desirably corrosion resistant coating for engine antifreezing solution conditions (page 8-10 of the translation), thus indicating that special improvements would be expected under such conditions. Given that Gierek teaches that it can be desirable to provide corrosion resistance to various parts including parts for internal combustion engines (column 4, lines 40-45), flanges and sockets (column 3, lines 35-40), and threaded and unthreaded connectors (column 3, lines 60-65), the suggestion to treat parts so that there would be beneficial protection against antifreezing solution would be an obvious use of the process, given that Japan '213 notes that there is a desire for protection against antifreezing solution when providing aluminum alloys for automotive radiators, and the Examiner notes that other parts can also be exposed to such materials, such as screws or bolts.

Appellant further argues, at page 10, that as noted in Dr. Frankel's Declaration, Japan '213 is directed towards an automotive radiator with corrosion resistance provided by an aluminum alloy, and there is no evidence that plasticity of the coating is needed or even desirable for the radiator, and since the radiator generally does not have moving components in need of plasticity, it is unlikely that the Japan '213 process will achieve the plasticity resulting from appellant's bath time and temperature, and thus, there is not reason that one would rely on Japan '213 for any relevant or useful bath parameters.

The Examiner has reviewed this argument, however, her position is maintained. As noted in the paragraphs above, Japan '213 provides a desirable corrosion resistant aluminum alloy, that would be desirably provided as a beneficially corrosion resistant coating when combined with the teachings of Gierek and Rallis. While applicant is of the position that the claimed process provides a desirably plastic composition, the Examiner notes that it is not necessary for the prior art to desire to get a plastic coating, as long as the same steps for getting such a coating are provided. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Here, the desire for a corrosion resistant coating can be a reason for using the alloy of Japan '213.

B. Appellant argues, at pages 10-11 of the Appeal Brief of June 29, 2011, that Japan '213 is non-analogous art

At page 10, appellant cites In re Klein as to the test for analogous art. Appellant further argues, at pages 10-11, that the field of the present invention is coating steel products with an aluminum alloy for corrosion protection, while Japan '213 is directed to aluminum alloy casting, and thus Japan '213 does not satisfy the first prong of the test (not in the same field of endeavor). Furthermore, appellant argues that the problem addressed by appellant's invention is decreasing the temperature of the aluminum melt

so as to provide a plastic protective coating without using flux, with the disadvantage of the closest known prior art being that the coating became brittle when the aluminum melt temperature was lower than 715 degrees C. Japan '213, according to appellant, on the other hand, has no discussion of the temperature of the aluminum alloy or plasticity of the alloy, and thus fails the second prong of the analogous art test.

The Examiner has reviewed this argument, however, her position is maintained. As discussed in MPEP 2141.01(a)(I), analogous art is considered under the following analysis, ""Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed. " KSR International Co. v. Teleflex Inc., 550 U.S. ___, ___, 82 USPQ2d 1385, 1397 (2007). Thus a reference in a field different from that of applicant's endeavor may be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his or her invention as a whole." In the present case, appellant desires to provide a plastic protective coating without the use of flux from an aluminum melt (page 2, lines 1-5 of the specification as filed), and also notes that the invention in general refers to applying metal, e.g., aluminum, coatings by plunging into the melt and may be used, for instance, for corrosion protection of rolled and other cast iron and steel products (page 1, lines 4-6 of the specification as filed). Therefore, at the least, even if the reference to Japan '213 is not considered in appellant's field of endeavor because it is not concerned with

applying plastic (ductile) aluminum coatings onto ferrous metal, it would be logical to look at art concerned with providing corrosion resistant aluminum alloys, given appellant's specific concern with aluminum coatings to give corrosion protection and thus the art is reasonably pertinent. Japan '213 indicates that alloys of the described composition give corrosion protection and thus, since both appellant and Gierek (column 1, lines 5-15) are also concerned with corrosion, it would be obvious to look to art such as Japan '213 which is also concerned with providing a corrosion resistant aluminum alloy.

C. Appellant argues, at pages 11-13 of the Appeal Brief of June 29, 2011, that the cited references cannot be combined.

At pages 11-12, appellant cites case law as to what is required for combining references, and then at pages 12-13, argues that since Gierek does not disclose appellant's alloy, Rallis teaches away from appellant's plasticity goal, and Japan '213 has no time or temperature limitations or any disclosure of a plastic aluminum alloy coating, a person skilled in the art would not combine these references to achieve appellant's invention, as suggested by the Examiner, absent hindsight from the present application.

The Examiner has reviewed these arguments, however, her position is maintained. As noted in the discussions above, it is the Examiner's position that the combination of references is proper and it is this combination that provides the entire

features of the present invention, and that position is maintained here. In response to appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Here, it is the combination of the art that provides the claimed features. As previously noted, the combination does not have to be made based to the desire provide a more plastic coating, it can be to provide a desirably corrosion resistant coating, for example, and the combination is proper, using analogous art, as discussed above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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